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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PIA M. CHALLITA-EID, MARY FARIS, DANIEL E. H. AFAR, RENE S. HUBERT, STEVE CHAPPELL MITCHELL, ELANA LEVIN, KAREN JANE MEYRICK MORRISON, ARTHUR B. RAITANO, and AYA JAKOBOVITS

Appeal 2007-4246
Application 10/024,652
Technology Center 1600

Decided: March 3, 2008

Before ERIC GRIMES, LORA M. GREEN, and
RICHARD M. LEBOVITZ, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 4, 6, 7, 9, 10, 12, 13, 78, and 80-83. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

The claims are directed to antibodies to the 108P5H8 protein (SEQ ID NO: 2570) and a hybridoma that produces the antibody. Claims 4, 6, 7, 9, 10, 12, 13, 78, and 80-83 are pending (App. Br. [1] 2). Appellants appeal the final rejection of the pending claims for failing to comply with the utility and enablement requirements under 35 U.S.C. §§ 101 and 112, first paragraph, respectively (Ans. 3). Claim 4, which is representative of the claimed subject matter, reads as follows:

> 4. An isolated monoclonal antibody or antibody fragment that specifically binds to a protein having an amino acid sequence of SEQ ID NO: 2570.

ISSUE ON APPEAL

Claim 4 is directed to an isolated monoclonal antibody, or an antibody fragment, that specifically binds to a protein having the amino acid sequence of SEQ ID NO: 2570, also known as the 108P5H8 protein. The asserted utility for the antibody is to treat prostate cancer (App. Br. 4).

The Examiner contends that the claimed antibody does not meet the utility requirement of 35 U.S.C. § 101 because further experimentation would be necessary to establish a credible, specific, and substantial use for it. Appellants contend that treatment of prostate cancer is a credible, specific, and substantial use of the claimed antibody. Thus, the issue in this case is whether the Examiner erred in the determination that the asserted utility fails to fulfill the utility requirement of 35 U.S.C. § 101.

[1] "App. Br." refers to the Appeal Brief dated stamped Nov. 20, 2006.

DISCUSSION

Rejection under § 101

According to the Specification, the gene designated "108P5H8" is overexpressed in at least some cancers, including prostate cancer (Spec. 7: 2-10; 178, Table I). Fig. 11 shows "strong expression" of the 108P5H8 transcript in normal and prostate cancer tissues, but "lower expression" in other tissues (Spec. 11: 1-10; Fig. 11B, *see* lane 3 for normal prostate and Fig. 11C for prostate cancer). Using an anti-108P5H8 antibody, it was established that the 108P5H8 protein is on the surface of prostate cancer cells (Spec. 13: 24-28; Fig. 21). Western blot analysis, also with an anti-108P5H8 antibody, showed 108P5H8 expression on normal prostate and prostate cancer tissues (Spec. 14: 4-11; Fig. 23). Based on this evidence, it is stated in the Specification that 108P5H8 "thus serves as a useful diagnostic, prophylactic, prognostic, and/or therapeutic target for cancers of the tissue(s) such as those listed in Table I" (Spec. 7: 8-10). Prostate cancer is among those listed in Table I. Accordingly, Appellants rely on the use of an anti-108P5H8 antibody for prostate cancer treatment to satisfy the utility requirement of 35 U.S.C. § 101 (App. Br. 4).

The Examiner states that the Specification "discloses that 108P5H8 polypeptide is expressed in both normal and cancerous prostate (pg 11; pg 77; Figures 11 and 14; *especially Figures 11A, 11B (lane 3) and 11C*)" (Ans. 6). The Examiner contends:

> Thus, the efficacy of the claimed antibody to target and effectively treat prostate cancer would not be predictable. Furthermore, 108P5H8 mRNA is also expressed nonspecifically on several normal tissues (including kidney, brain and testis) and other cancer tissues/cell lines . . . Table I at page 127 of the specification lists other malignant tissues that express 108P5H8, including bladder, kidney, colon, lung, ovary, breast, pancreas, uterus, and stomach. Thus, the 108P5H8 mRNA and polypeptide are not specific to one tissue or cancer and the specification discloses nothing about the levels of expression of the 108P5H8 polypeptide in normal and cancerous tissues. No correlation is provided between 108P5H8 expression and a cancerous condition, so predictability of efficacy of the antibody treatment of prostate cancer is unknown and unsupported.

(*Id.* at. 6-7.)

"[T]he PTO has the initial burden of challenging a presumptively correct assertion of utility in the disclosure. . . . Only after the PTO provides evidence showing that one of ordinary skill in the art would reasonably doubt the asserted utility does the burden shift to the applicant to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility. *See In re Bundy*, 642 F.2d 430, 433." *In re Brana*, 51 F.3d 1560, 1566 (Fed. Cir. 1995).

In this case, the Examiner challenges the asserted utility because 108P5H8: 1) is not specific to any tissue or cancer; 2) is expressed on both normal and cancer tissues; and (3) the function of the 108P5H8 protein is unknown (Ans. 3, 6-7). Thus, the Examiner concludes that it would not be predictable that an antibody to 108P5H8 would be useful to treat prostate

cancer (*id.* at 7) and rejects the claims for lack of utility under 35 U.S.C. § 101.

Because the Examiner provides a well-reasoned statement explaining why persons of ordinary skill in the art would have doubted the asserted utility (*see supra* at p. 3-4; Ans. 3, 6-7), we find that the burden properly shifted to Appellants to provide rebuttal arguments or evidence. *Brana*, 51 F.3d at 1566.

In rebuttal, Appellants assert that the Specification establishes that "antibodies made against the 108P5H8 protein were capable of binding the protein expressed on the surface of prostate cancer cells" (App. Br. 5; *see* Spec. 13: 24-28; Fig. 21). They also provided a declaration under 37 C.F.R. § 1.132 by Dr. Karen Jane Meyrick Morrison ("Morrison Dec.") which, consistent with the Specification, shows anti-108P5H8 antibody bound to prostate tumor cells (App. Br. 5; Morrison Dec. 2: ¶ 3). Thus, Appellants contend that this data establishes that the 108P5H8 protein can be used to target prostate cancer cells (App. Br. 5).

In response to the Examiner's assertion that an antibody which binds to both cancer and normal tissue does not have a specific and substantial utility and would not be useful to treat cancer, Appellants provided a declaration under 37 C.F.R. § 1.132 by Dr. Steven B. Kanner ("Kanner Dec."). The Kanner Declaration, submitted during prosecution, concludes "that targeted antitumor therapies are useful even when the targeted protein is expressed on normal tissues, including normal vital organ tissues" (Kanner Dec. 2: ¶ 2). In support of this opinion, Dr. Kanner describes two

examples of proteins targeted by cancer immunotherapies, HER2/neu and epidermal growth factor receptor (EGFR), in which each protein, like 108P5H8, is expressed on normal and cancer tissue.

The first example is "Heceptin® . . . [which] has as its active ingredient an antibody immunoreactive with the protein known synonymously as HER2, HER2/neu, and erb-B2" (Kanner Dec 2: ¶ 3). According to Dr. Kanner, Heceptin® is an FDA approved treatment for metastatic breast cancer (*id.* at ¶ 4). However, expression of HER2 is not limited to breast cells, but is expressed on a number of normal tissues, including kidney, colon, and heart (*id.* at ¶¶ 4-8). Thus, Dr. Kanner concludes that the expression of a protein on normal tissues "does not defeat the utility of the protein as a therapeutic for certain tumors in which the protein is also expressed" (*id.* at 4: ¶ 9).

Dr. Kanner also describes an anti-cancer therapeutic that targets the epidermal growth factor receptor (EGFR) (Kanner Dec. 4: ¶ 10). One such treatment is the antibody, Erbitux®, which is immunoreactive with the EGFR (*id.*). "The successful use of Erbitux is shown, for example, by the net sales in 2004 reaching $260.8 million" (*id.* at 5). Yet, in addition to being expressed on cancer cells, the "EGFR protein is extensively expressed" in adult normal tissues (*id.* at 5: ¶ 12). "Despite the fact that EGFR is expressed in numerous normal tissues, including vital tissues such [as] brain and colon, therapeutics that target EGFR are very useful and are in active development" (*id.* at 5: ¶ 13). Dr. Kanner concludes that "expression of a target protein such as EGFR in normal tissue, even vital normal tissues, does

not preclude the utility of the protein as a therapeutic target for certain tumors in which the protein is also highly expressed" (*id.* at 6: ¶ 14).

The Examiner contends that the Kanner Declaration is not persuasive because "the *well-characterized* protein targets in these therapies are *overexpressed* in cancerous tissue as compared to normal tissues" unlike the situation described for 108P5H8 (Ans. 11).

> Since 108P5H8 mRNA and protein appear to be expressed in normal prostate and cancerous prostate tissue at similar levels, the asserted utility of treating a cancer that expresses the 108P5H8 protein is not a specific or substantial ("real-world") asserted utility or a well-established utility. Thus, the efficacy of the claimed antibody to target and effectively treat prostate cancer would not be predictable.

(*Id.*)

In our opinion, Appellants have the better argument. The Examiner's position that an antibody binding to both normal and cancer tissue would not be useful (Ans. 6-7) is refuted by the evidence in Dr. Kanner's declaration that two antibodies with such characteristics, Heceptin® and Erbitux®, have been found to be clinically useful in treating cancer (Kanner Dec. ¶¶ 4-13). While the Examiner distinguishes anti-108P5H8 from Heceptin® and Erbitux® in that the latter target "overexpressed" antigens while anti-108P5H8 does not (Ans. 11), the Examiner does not explain why overexpression would be necessary for an antibody to be an effective treatment for cancer. As explained by Appellants, overexpression "of the target protein is not required for the claimed antibodies to be useful as a therapeutic because the prostate is a disposable organ . . . and a human male

can live without a functioning prostate" (Reply Br. 6). Therefore, even if an agent does not distinguish between normal and cancerous prostate tissue, it is reasonable to expect that it could be used to treat prostate cancer.

The Examiner also contends that because the function of 108P5H8 is unknown, and because no correlation between its expression and the cancerous state has been identified by Appellants, it could not be predicted that it would be effective to treat cancer (Ans. 9).

This argument is not persuasive. We agree with Appellants that:

> It is completely irrelevant what biological role the 108P5H8 protein plays in the life of a cell. All that matters . . . [is] that the protein be expressed on prostate cancer cells and that the protein be detectable by antibodies made against that protein. Applicants have clearly demonstrated both of these features for the claimed subject matter.

(Reply Br. 5).

The Examiner argues that the asserted utility is not "specific" since the 108P5H8 polypeptide is not specific for prostate cancer cells, but is expressed on other cancers, as well as normal cells (Ans. 15).

The Examiner misapprehends the requirement that a utility must be "specific" to comply with 35 U.S.C. § 101. The term "specific" does not appear in the statute. However, in interpreting the statutory language of § 101 that an invention must be "useful", the Supreme Court held that the

> basic *quid pro quo* contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. Unless and until a process is refined and developed to this point – where *specific benefit exists in currently available form* – there

> is insufficient justification for permitting an applicant to engross what may prove to be a broad field.

Brenner v. Manson, 383 U.S. 519, 534-35 (1966) (emphasis added). Thus, a "specific utility" is one in which the "claimed invention can be used to provide a well-defined and particular benefit to the public." *In re Fisher*, 421 F.3d 1365, 1371 (Fed. Cir. 2005). In other words, an invention must have a specific and particular use, rather than simply "a general utility that would be applicable to the broad class of the invention." *Manual of Patent Examining Procedure* ("MPEP") § 2107.01(I)(A) (Revision 6, September 2007). *See Fisher*, 421 F.3d at 1372 ("The PTO's standards for assessing whether a claimed invention has a specific and substantial utility comport with this court's interpretation of the utility requirement of § 101.").

In this case, the use of an anti-108P5H8 antibody to treat prostate cancer is a "specific benefit . . . in currently available form" as required by *Brenner* because the antibody has immediate benefit to the public for treatment of a specific disease, prostate cancer. What appears to have led the Examiner astray is the PTO's explanation that "a general utility . . . applicable to the broad class of the invention" is not a "specific" utility. MPEP § 2107.01(I)(A). The Examiner apparently understood this to apply to the facts presented here because antibodies to the 108P5H8 polypeptide bind both cancer and normal cells, and are asserted not only to be useful for treating prostate cancer, but also for the nine other cancers disclosed to express 108P5H8 (Spec. 7: 6-10; 178). That is, 108P5H8 is not specific to either prostate cancer or prostate cells. The Examiner erred in this

determination. An invention which has more than one use – and which is useful to treat more than one disease – is still capable of meeting the utility requirement as long as at least one of those utilities is specific and substantial. See *Fisher*, 421 F.3d at 1371.

Thus, for the foregoing reasons, we find that Appellants have provided sufficient evidence to convince persons of ordinary skill in the art of the asserted utility to treat prostate cancer. The rejection of claims 4, 6, 7, 9, 10, 12, 13, 78, and 80-83 is reversed.

Rejection under § 112, first paragraph

Claims 4, 6, 7, 9, 10, 12, 13, 78, and 80-83 stand rejected under 35 U.S.C. § 112, first paragraph. The Examiner states that "since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention" (Ans. 5). As we do not agree with the Examiner's determination that the claimed invention lacks utility as required by § 101, we also reverse the rejection under § 112, first paragraph.

CONCLUSION

The rejections of claims 4, 6, 7, 9, 10, 12, 13, 78, and 80-83 under 35 U.S.C. § 101 and under 35 U.S.C. § 112, first paragraph, are

REVERSED

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